MICHIGAN FARMER.

DEVOTED TO

AGRICULTURE, HORTICULTURE, AND RURAL AND DOMESTIC ECONOMY.

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EDITOR AND PROPRIETOR.

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[For particulars see last page]

For the Michigan Farmer.

Fencing.

NO. II.

Live fence, or Hedges, unlike most other kinds of fence, beautify, and adorn the farm, and add much to the scenery of the country where they abound. The hedges of England, trimmed all so neatly, never fail to excite the admiration of every American traveller, as he, for the first time, passes through her rural districts. A fence that combines beauty, durability and cheapness, is the one, which every economist, and man of taste will prefer above all others. Of the beauty of hedges, none, I think, will doubt; certainly not those who have seen them, unless utterly devoid of taste for the beautiful. Their durability will depend upon the material used, and the care they receive. The material we have in great abundance in Michigan, which, in my opinion, equals, and, in some respects, surpasses the material used in England. For various reasons, this kind of fence has not as yet received that attention from our farmers, which it seems to me to demand. The patches of hedge, that are occasionally to be seen, are mostly, I believe, the product of foreigners; and the material used, so far as I have noticed, the hawthorn, so generally used in England. Finding that it does not flourish here, as in their mother country, they soon abandon it, and substitute the unsightly rail fence. It has, I confess, been to me a matter of surprise, that few, if any of the English farmers, who have settled in our beautiful peninsula, have yet learned that we have as good materials for hedging, that are indigenous to our state, as the far-famed hawthorn. I allude to the two varieties of thorn that are found in such great profusion upon our timbered land. Although found most abundantly upon moist soils, it flourishes equally well, so far as I have experimented, upon a dry soil, and will be found to grow upon our plains and prairies equally well, as upon our timbered lands. One of the varieties has a thick glossy leaf, and is far more beautiful to my eye, than the hawthorn. Besides these, we have the crab apple, which grows rapidly, and is quite thorny. I see no reason why it will not answer equally well with the thorn, with the advantage, that it can be propagated from the seed, more quickly than the thorn: besides, it is one of the most splendid flourishing trees that is to be found in Michigan, and would surpass in beauty every other material used for hedging, when in blossom. There are other materials within the reach of the farmer, but these that I have mentioned are good enough, and can be propagated from the seed at a trifling expense.—The manner of propagating the thorn from the seed is described in your September Number, to which I would refer your readers.—Previous to setting the hedge, a strip of land, to the width of ten feet, should be well manured, and thoroughly subdued. In the centre of this strip, let a garden line be drawn, and with a spade, cut down close to it, to the length of the blade. After cutting the length of the line, throw out the earth on the side opposite to it, leaving the trench about six inches deep, the line may then be removed. If the trench is perfectly cut, there will be a perpendicular wall on one side. Having completed your trench, draw from your seed bed the largest plants, and of about the same size.—Shorten the top root to six or eight inches, or, which is perhaps preferable, let it remain, giving it a lateral direction along the bottom of the trench, when set. Take as many trees as can be conveniently held in one hand, and with the other, take them, one by one, and place them in the trench against the wall, about five inches apart, and with the foot, draw in sufficient earth to hold them in their place; thus proceed till the trench is filled.—Throw in about half of the earth that was thrown out, and press it down with the foot, keeping the trees in their place; then fill the

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trench, and again press the earth around the roots. In case a double hedge is required, the trench should be made eight or ten inches wide, and cut down by the line on both sides, and a row of trees placed on either side, not opposite to each other, but within each other, (thus *******.) The man, in operating, will find it most convenient to stand with his face to the line, placing the back of the spade to the line; in this way, with a little care, the wall of the trench being made perpendicular; and when setting the trees, to stand with one foot in the trench, and with the other upon the bank, moving backwards as he proceeds.

A much more expeditious way of transplanting, is to dibble them in. Where the trees are of a small size, and the ground mellow, this would be the better method.

I have been thus particular in describing the process, because many may be ignorant of this expeditious mode of transplanting. A man would easily trench twenty-five rods of hedge in a day, and dibble fifty rods in a day. By cultivating a row of potatoes on each side of the hedge, the ground would be kept mellow, and free from weeds, and the crop of potatoes would abundantly pay for the labor of cultivating the hedge. In the spring of the second year, after filling the vacancies that may have occurred, cut the hedge down to within three or four inches of the ground, and in the place of the single shoot cut off, a number of shoots will spring up in its place. By this process, the hedge is thickened. In the spring following, after filling the vacancies, pass along the hedge, and if there are any thin places, some of the young shoots may be woven in laterally, to remedy the defect, then head it down again to within eight or ten inches of the ground. Manure the land and plant as before. The fourth year, repeat the process of weaving in branches to thicken the hedge. It should then be slightly trimmed, cutting off the lateral branches, and headed down to within two or three feet of the ground, according to the discretion of the operator. If the hedge has grown well, and is compact, it may be left three feet high. The fifth year, manure again, and plant potatoes; let the process of weaving in branches, trimming and heading down, be repeated. A hedge properly cultivated, would, I think, make a safe fence, by the time the plant is five or six years old; and the only attention that it would then require, would be, to trim it yearly. From a careful estimate which I have made, I think the actual cost of a hedge, at five years old, where the seedlings are raised by the individual himself, would not exceed sixteen cents a rod: but suppose we add fifty per cent. to this, making the cost 25 cents a rod: if to this is to be added the expense of keeping up an extra fence, while the hedge is being cultivated, the cost might be thirty cents a rod, and forty cents a rod, according to the above estimate, for a double hedge. If my estimate is correct, the *first cost* will be, perhaps, double that of a rail fence; but if we take into the account its durability, it wonld be the cheapest fence. The annual expense of trimming the hedge, would not, I think, exceed much, if any, the expense of keeping a rail fence in repair, during the whole period of its existence.

If what I have said on this subject shall induce any of your readers to try the experiment of making a hedge, I hope they will keep an accurate account, and let the public know what it has actually cost them a rod.

PETRA.

For the Michigan Farmer.

Ringbone in Horses--Another Cure.

MR. EDITOR:—Having read a late article in your paper, on the cure of ring bone in horses, I drop you a few lines relative to my experience in this matter in the State of New-York, and also in this country. I was brought up to the taking care of those animals, and have practiced it for almost three score and ten years. Having always found that the most simple remedy is the best, I would recommend the following as a safe and sure cure, in the first stages of Ringbone.

Let the part affected be dry and clear; take good common house soap, rub well into the hair on the part affected, then dry it in well with a hot iron—but not too hot. Continue this for three mornings, when a cure will probably be effected—but if not repeat the treatment. I tried the experiment lately with good effect, and think that three applications will be fonnd sufficient. If any of your numerous readers have need, they can try it with perfect safety. M. BENNETT.

Mendon, Mich., Nov. 17, 1845.

How to Kill the Milk-weed--Inquiry.

MR. EDITOR:—Will you, or some of your correspondents, inform me through the columns of your paper, of the best way, if there be any way at all, of killing the *Milk-weed (asclepias syriaca)*? TYRO.

Wool.

American wools have been tested in England and are liked; as those acquainted with their excellent qualities, knew they would be. Hereafter they will become a matter of necessity to the manufacturers of Europe. The low prices of American wools this season were brought about by a combination of causes.

The supplies coming forward from some of our western States, appeared to superficial observers as so much actual increase of production; and the inference was, that the markets would be overwhelmed with supplies.

It is no doubt true, that looking to the future, the germ of a large increase in the production of wool in the west is planted, but we have yet to reap the harvest from the seed sown.

The sheep sheared this season in Michigan, Illinois, and other western States, have mostly been driven from New-York, Pennsylvania and Ohio; and allowing for mortality in driving the animals such long distances, for poverty of condition in the survivors, for change of soil and climate, from ignorance and inexperience in the treatment of them by novices in sheep husbandry, the destruction by wild animals, &c., there can be little doubt that the transfer of such sheep from one section of the country to another must, for the first year or two, *diminish rather than increase the production of wool.*

We have, in addition to the above, the fact that as flocks increase on the cheap Western lands, they decrease in many districts of the Eastern States. For example, one of the oldest wool growers west of Albany, has reduced his flock of 2000, down to 100; and many of the flocks in this State which counted their thousands some two years ago, are entirely broken up and dispersed.

The animated demand for our wools for export during the last four months, has almost imperceptibly swept the market of most of the parcels, which being scattered through many hands, and all pressing to make sales, tended, with other causes, to produce the extremely low prices; so that the stocks of nearly all kinds of American wools, both fleece and pulled, are probably smaller than they have been for years, at a corresponding period.

The wool growers no longer require protection. The rate of duty on wool, will in future be to them a matter of little consequence. In the markets of Europe they have a safety valve, which will protect them against artificial panics, such as they would have *seen* and *felt* during the long drought of this Autumn, but for the counteracting influence of no export demand, backed by that all powerful agent, "British gold."—*Jour. of Com.*

Oregon and China Wheat.

There have been left at our office two kinds of wheat, the one called "Oregon" wheat, the other "China." It was taken from the Bloomfield estate, belonging to Henry R. Smeltzer near Middletown, Frederick County, Md. The "Oregon" was found, or discovered by a missionary travelling through that territory, who brought it to this country in 1839. Mr. Smeltzer this year raised from four and a quarter acres, 212 bushels. This wheat is very hardy, of a beautiful red color, with smooth chaff, heads from five to six inches long, and average from 99 to 130 grains to the head. It is believed that it will yield at least 20 per cent. more to the acre than ordinary wheat, from the fact that it has from 15 to 20 grains more to the head. The history of the China wheat is rather singular. A few heads were found in a box of China ware, imported from the north of China, and the heads being so large and compact, the discoverer was induced to plant them. Mr. S. informs us that last year he raised 42½ bushels per acre with it, and this year 47 bushels per acre. This is a beautiful white wheat, and has heads or ears about as long as the "Oregon" wheat, and has about the same number of grains to the head. The China wheat is of the early kind, and so far has not been injured by smut, mildew or fly.—*Balt. Sun.*

Great Yield.

Henry Jones, of Young's Prairie, Cass county, raised on one acre of ground this year, *sixty-one bushels* and *twenty-five pounds* of wheat. This is the largest yield we have heard of in Western Michigan. A large number of fields in this section have yielded from 30 to 45 bushels to the acre this season. Perhaps the world cannot furnish a finer or more productive country for grain than the St. Joseph Valley.—When we cast an eye back to the land of our nativity, where, eighteen years since, we followed the plow, among the rocks and stones of Connecticut, where 15 bushels of rye to the acre was considered a fair yield, we cannot but wonder how mortal man can be content with such an abode, when the rich and fertile soil of the west holds out inducement the most inviting to all.—*Niles Repub.*

How Shall Manures be applied?

Much discussion has been had in Agricultural papers, upon the proper manner of application of manures. Some writers contend that they should be applied to the surface, and, at most, only be harrowed in—that the rains will wash down the virtue of the manures deep enough in the soil,—and that their great source of waste is, their loss by filtration, a large portion of their fertilizing qualities passing thus far beyond the reach of the roots of plants, and escaping into water courses many feet below the surface.

Others tell us, that the far greater source of waste is, the passing off into the air of the fertilizing gases, set free by the decomposi-

tion of manures, and that to prevent this, we must bury them deep in the soil.

We remember reading arguments, (supported by facts,) on both sides of this question, many years ago; and as each party contended stoutly to the last, that they had tried both systems, and found their own to work best, we presume neither succeeded in bringing over the other to their opinion. The point is still, to some extent, a mooted one.

It appears to us, that, to a certain extent, both these doctrines may be correct:—manures suffer waste, unquestionably, from both the causes mentioned, and the advantage of applying them in one way or the other, may depend greatly upon two circumstances, viz: their condition at the time of application, and the kind of weather that follows it.

If the manure applied, be long, or unfermented stable manure, or straw, we think it should be well buried in the soil, for the double reason of promoting its more rapid decomposition, and preventing the escape of the gases, produced by this process.

But if the manure has already gone through the most active stages of decomposition, and be well rotted, then we think it will do well to apply it to the surface, or only harrow it in. It is then in a fit condition to have its remaining virtues leached into the soil by rains.—Liquid manures are, of course applied to the surface, and left to find their own way into the soil, or, at most, are only followed by harrowing.

Again, if the application of the manure be followed by a prevalence of dry weather, this would promote loss by evaporation—if by wet weather, the loss would be by filtration.

Our own conviction is, however, that manures should always be applied in their unfermented state, and that the process of rotting should take place in the soil, if we would make the most of them; and then, according to the principle we adopt, they should always be plowed in deep.

For the Michigan Farmer.

Non-Smoking Chimneys.

Mr. Editor:—Who that has suffered from the annoyance of a smoky chimney, would not rejoice to be told of a way in which the evil may be avoided? Believing, sir, that the principles of chimney-building are plain and simple, and that when once known, it is just as easy to have chimneys that will draw like a stove, as those that smoke, and further believing that I shall be able to give you and your readers an idea of these principles, I am induced to write you this communication.

The essential rules to be observed are believed to be the following:

1. The throat of the chimney should be narrow, say from three to five inches in diameter.

2. The back of the fire place should be built up perpendicularly, or inclining a litttle forward, and be nearly in a line with the inner surface of the front side of the chimney above.

3. After being carried up to within a proper distance of the mantle tree to leave a sufficient flue, the back should then retreat at almost a right angle, leaving a space above the flue, from front to rear, some three or four times as wide as the throat.

4. The sides of the chimney above the flue should never be drawn in, but be carried up perpendicularly the apperture being preserved the same throughout.

For the more perfect understanding of these rules, I give below a side view of a chimney, constructed as I think one should be.

I have heard of a chimney constructed mainly after this plan, the only fault of which is, that it draws too hard. To regulate this, should such a difficulty occur, it is proposed that a sheet-iron damper be inserted at *A*. in the cut, by letting down which, more or less, the draught may be reduced to a just medium.

A plan similar to this, is mentioned in the last report of the Commissioner of Patents, as having been made the subject of a patent. How nearly it resembles this I do not know, as the description is indefinite. I do not suppose, however, that any one building after the plan I have sketched, would make any very serious infringement of vested rights.

I am no mason, Mr. Editor, and if I have made any material error or omission, I am willing to be corrected. But the number of smoky chimneys is so great, that it is evident, a great many of our chimney-builders know nothing about the art; and the evil, were it exists, is such a *crying* one, that I wished, if possible, to set them right: for, surely, a man who goes about building chimneys wrong end up, deserves to be presented as a public nuisance.

Anti-Smoke.

The Discussion on "Housing Sheep"—Unexpected Censure.

A letter has been received by us, containing certain grave complaints of our manner of treating the discussion in our columns relative to "Housing Sheep." We have no space to devote to matters personal to ourself or others; but the charges made, and certain reports alluded to, affect so seriously our character as a public Jour-

nalist, that we cannot allow the matter to pass altogether in silence. We are unwilling that *any* should think we have violated justice, or shown the least partiality between correspondents.

Our correspondent thinks we have done injustice to Mr. Spafford, by representing him as *opposed* to affording shelter and water for sheep.—He is mistaken—we did not so represent him.—We spoke of the absence of protection as "*countenanced*" by Mr. S.; (mark the difference,) alluding then to his own statement of his practice the preceding winter. Our remarks on not giving water to sheep, were intended to be general, applying to a somewhat prevalent opinion, not to Mr. S. in particular. His remarks and ours are before our readers—to them we refer.

After the close of the published discussion, we received a letter from Mr. S., in which he stated that we had misapprehended him—that he was in favor of affording shelter, and was soon about to construct sheds for his flock, preferring, however, a kind more permanent than that suggested by Mr. Barker—that he thought sheep should have water also, but that farmers could not always get it as they would wish it. We did not think proper to publish the whole letter, because we did not wish to prolong the discussion; but we made an abstract of what was judged material, comprising the above mentioned items, for publication in the next number. In making up the paper, however, that abstract was inadvertently omitted, and it was not thought important to insert it in a subsequent number, because Mr. S. had said nearly the same thing in his first communication, which was before the public. We have only to say, that in this, we designed no injustice to Mr. S.

Our correspondent alludes to a report, that we have praised Mr. B's. sheep beyond their merits, and that in consequence the public are deceived. This is, indeed, a serious charge. It would, certainly, be very wrong for a publisher to betray public confidence, by lending his columns to puffs of unworthy articles. It would also be wrong to suffer them to be used to depreciate the value of what may be really good, and to injure an individual who may have introduced animals for sale, for the public benefit, as well as his own profit. The short and the long of our concern in the matter, is this: our notice of those sheep was derived, not from Mr. B., but from a communication in the August No. of the Albany Cultivator, which said more of Messrs. Barker & Mill's purchase, than we did. Our reason for mentioning it *at all*, was, that we were rejoiced to hear fine animals were about to be imported, because we think it of incalculable importance to the Agriculture of the State, that our breeds of domestic animals should be of the best kinds. The intimation thrown out by this writer, about the *subsidizing of a press to subserve unworthy ends* is quite gratuitous, and is scarcely atoned for by his subsequently acquitting us of all fault, except inadvertence. We spoke of Mr. B's. flock, not from observation, (for we have never seen it,) but from information which, we supposed, could be relied on; and were not disposed to retract our commendation, until we were satisfied there was evidence that required it.

This is all the "apology" we have to make in the premises: but we will take this occasion to add a few words on what we conceive to be our rights and duties, as publisher of this Journal.—Our primary object is usefulness to the farming public;—and it is our duty to insert such matter whether original or selected, as will best promote this end. Discussion, temperately carried on, and not too extended, may be useful as a means of eliciting truth, and enable men to settle inteligently upon the best course. Farther than this, it may do in the arena of political strife, but it is not desirable in an Agricultural journal.—Hence, we shall always take the liberty to abridge or omit, when judged expedient, suppressing whatever is calculated unnecessarily to protract discussion, or to irritate the feelings. For the exercise of a sound discretion on this point, we hold ourself responsible to the public, recognizing, as the just rule of our conduct, the strictest impartiality, and reserving, of course, the free expression of our own opinion, whenever it is deemed proper to give it.*

Ohio Wheat.—P. W. Grant, of this township, sowed four acres, lacking six rods of ground to wheat, which yielded the past season *one hundred and sixty-one bushels* of wheat. The crop preceding was part tobacco, and the balance clover, which was plowed under. The soil is sandy, and a few years ago the soil would not yield a crop sufficient to pay the expenses of tilling. In the management of Mr. Grant's farm the assertion is further demonstrated, that small farms are in general, more profitable than large ones, and command better prices.—*Conneaut Reporter.*

Experiments on Diseased Potatoes.

"1st. Col. E. Clark submitted a lot to the action of a weak solution of chloride of lime in water for twelve hours. 2d. Similar lots were steeped for the same time in lime water prepared by placing a lump of recently burnt lime in a vessel of water. 3d. Potatoes moist from the heap were sprinkled over with lime dust slacked to dryness with water. The disease in all the potatoes so treated, was arrested, while the parcel from which they had been taken continued to perish and were thrown away as useless. The lime water acted most favorably; the other preparations caused the pototoes to shrink.—*Proceedings of Am. Inst.*

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* An other letter has come to hand from one who represents himself as formerly our friend, whose good will, it appears, is alienated by this same matter above referred to. We regret, of course, to lose friends;—we should regret it more, if we were conscious of losing them by any intentional injustice. Again we have the hint of collusion. If we were disposed to do so humiliating a thing as to give a negative to such a charge, it would be useless—for the Editor that would be base enough to commit such an act, would be base enough to deny it. To such as are unbiased, we say, if Mr. Barker's flock has turned out to be degenerate, we know nothing about the matter, nor about the evidence on which it rests. If we were satisfied, however, that such were the fact, we should be among the first to caution the public against purchasing them. But we must have some better authority for the act. than a flying rumor.

We are charged with having suffered Mr. B. to dispute Mr. S's veracity as to his sheep not having water. We did not so understand it. Read again.

One of these writers says that the flock of Mr. Belknap, of East Portage, in this county, was injured last winter, by too close confinement, and recovered on being allowed the range of the fields. Will Mr. B. and others who may have tried the experiment, give us the particulars. All we want, is to come at the right conclusion.

Prof. Johnston's Lecture.

[Concluded.]

The land then may be exhausted in two ways —generally of all the substances, and specially, of particular substances; and from this circumstance we are enabled again to make two or three practical deductions. In the first place, inasmuch as the soil contains a limited quantity of these substances, and inasmuch as different crops carry off different portions, you at once see why it is judicious to have a rotation of crops—that the longer the time is which elapses before you take a similar crop, the longer will the soil last and continue productive. A soil may produce one crop when it cannot produce another.—Let us inquire next why land is manured. The composition of the soil would tell you in the first instance, for it is obvious that manure is applied to restore those things which are wholly or comparatively wanting. Chemistry tells practical men how to renew their exhausted soil. Suppose that fifteen crops of oats have been taken off a piece of land, it will lose a large quantity of lime, phosphoric acid and potash, and in order to restore it you must supply the soil with those ingredients of which it has been robbed. Manure being composed of the remains of vegetables taken off the land, and containing all those things of which the plant consists, the farmer, generally speaking, is enabled by this application to retain the fertility of the soil. But then, observe you, he adds all those things which are required for a fertile soil, which may be a great deal too much, and may not supply an adequate abundance of that particular substance which the land actually requires, and thus a great expense is entailed which he may not be able to undertake, and thus the land falls short of that richness which he wishes, and which, at a less expense, he might be able by other means, under the guidance of chemical knowledge, to provide for his land. If the farmer knows chemistry, he will, at far less cost, and far more effectually, secure good crops.

I come next to the organic part of the plant.—You observe, when I take this wheat flour dough and wash it in water, it diminishes in bulk, and the water becomes milky. The portion that remains, for it will not all wash away, is a sticky substance, and this is called gluten. If the water is allowed to stand a short time, the white will fall to the bottom and form starch. The flour is thus easily separated into two parts, the starch and the gluten. If lint or hemp seed is put into a press and squeezed, a large quantity of oil will come out, but not the whole that the plant contains, and this is the case with all seeds, more or less, though the fatty matter may not be so abundant perhaps as to produce oil by pressure merely. Wheat contains gluten to the extent of from 10 to 13 per cent.; meadow hay 40 per cent. of starch. Of fat, wheat contains from 2 to 4 per cent.; straw, sometimes 3 per cent.; oats, 6 per cent.; Indian corn, 9 per cent.; and meadow hay, from 2 to 5 per cent. Thus the organic part of vegetable matter contains gluten, starch and fat.

I will now make a few observations on the composition of the animal. Of what does the ash of animals consist? The body, you know, is composed of various parts—of muscles, fat, bone and other elements which I need not detail. Let us examine the composition of the muscle, and we shall find that it contains two and a half per cent. of phosphate of lime, and a third per cent of other saline matters. In bones you do not have all the substances which exist in wheat, but you have some of them, such as lime, magnesia, &c. In ten gallons of milk there is three-fourths of a pound of saline matter; so that if you take the composition of the muscle, of the bone, and of the milk together, you will find that animals contain the different substances which are to be found in the soil. Thus it is we learn the intimate connection between the composition of the inorganic matter of the plant, of the animal and of the soil. But where does the animal get this inorganic matter? They obtain it all from the plants. In bone, six-tenths of the whole consists of phosphate of lime and magnesia. Now an animal could not support itself or walk about without some bone or firm substance to uphold it. It feeds upon herbage, which it must have in order to obtain those different substances of which it is made up. But if the plant had no soda or magnesia, the bone could not be built up, any more than the walls of this house could be erected without lime, stone and other substances. It is necessary, then, that the plant should have all these substances, in order to supply them to the animal creation—a purpose which it could not fulfill unless it contained all that is necessary to build up their bodies. And where does the plant get these substances? It gets them from the soil; nor can a plant live without them. And here we have a beautiful example of the provisions of nature, for a plant cannot grow, it cannot appear at all, unless it can acquire those elements, and that, too, just because, if it did live, it might indeed deck the surface of the earth, but it would not be able to feed animals, which is its great purpose in the creation. (Loud applause.) Thus a beautiful thread of philosophy prevades and connects all those different substances. Of what does the organic matter consist in animals? It consists of two parts, the muscle and the fat, and you will remember we have three things in the plant, fat, gluten and starch. If I take a piece of muscle and wash it, I shall wash out the blood and make it like the color of fat; and upon tearing it out it will be seen to be fibrous. When the fibre is analysed, it is found to be the same thing as the gluten of wheat. If you take the fat of animals and compare it with the fat in plants, you will find a remarkable analogy to each other, though they are not absolutely identical, and I believe they could very easily be converted into each other. The organic matter of vegetables contains the same substances of the muscle of animals. Vegetables contain a large proportion of that which will very readily form the fat of animals, the only difference being that animal matter contains no starch. Let us now see what is the purpose for which the animal eats its food.—Unquestionably for the support of the different parts of which it consists. You see again what a beautiful connection exists between the organic part of the plant and that of the animal. The animal eats gluten in order to form the fibre.—When I eat rolls at breakfast, I eat a quantity of gluten and starch, and that gluten saves the di-

gestive organs the trouble of manufacturing gluten for the frame. Out of those rude elements which constitute the soil, and which float in the air, it is the duty of the plant to prepare those substances—those bricks as it were, to be carried away by the builder to fill up different gaps which are continually made in the body. There is a great difference between starch and gluten. That substance called nitrogen exists in the latter but not in the former; in the fibre and not in the fat of animals. Thus nitrogen is obtained wholly from the soil, therefore it is necessary it should be in the soil. In beans gluten exists to the extent of 28 per cent. If, therefore, you or I eat beans, we eat that which is capable of building up a much larger proportion of muscle in the body.

Again, if the soil contains a large proportion of gluten, beans will grow where no other plant would. Some animals lay on the fat very abundantly, and some, like myself, lay it on very sparingly. (Laughter.) If you can have an animal inclined to lay on fat, feed him with Indian corn.

There is an important difference between the composition of the vegetable and that of the animal; in the former there is gluten, starch and fat; in the latter, muscle and fat only. The lungs are a sort of carbonic acid manufacturers. The starch we throw off to the air, the plants suck in, and thus it is the leaves are continually in motion, beating against the air, forming a thousand little mouths which perpetually suck in the carbonic air which forms starch. A man throws off about seven ounces per day of carbonic acid. Thus it would not be enough to eat merely of fibre and fat, but we require to eat the vegetable substances which contain starch, gluten and fat, because the general purpose of nature is to save the stomach the trouble of manufacturing these substances for itself. The lungs might suck in the same as plants do, but such is not the order of nature, and it falls to plants to supply the deficiency. The stomach can build more easily from carbonic acid than it could from muscle. In feeding young stock, the farmer must give as much as will not only supply the daily deficiency, but also supply an increase of muscle and bone. You all know that every part of our body is continually undergoing a change, and that a certain quantity of gluten must be eaten every day to supply it, and it is the same with young animals, and therefore they require an extra supply of the elements of muscle and bone, in order that they may increase in size. You may, by attending to the different qualities of the kind of food, make your animal either very fleshy, very bony, or very fat. Animals reject in dung and other excrements a great many substances, and as the plants contain substances which are soluble with water, it is of great consequence to take care of the liquid excretions, and to mix it with the solid, so that the whole the animal ate may be preserved, which being taken back to the soil, it is provided with the same substances almost forever. If you allow the liquid to run into the rivers, you bare the land of what the plant gets from the soil, and which the animal gets from the plant. When the animal dies, all those things which it got is returned to the soil, and thus the revolution goes on from the soil to the plant, and from the plant to the animal. (Applause.)

These are some of the points, gentlemen, by relating which I wish to interest you; which demonstrate the overruling presence of One mind, directing practical operations to the same end.—If there was not the same spirit and intellect pervading in the nature of the soil, the plants and the animals, there would be some confusion; but as they do exist, there is manifested the presence of One mind and of one principle, directing the whole cycle of animal and of vegetable life, as there is to be seen in all the cycles and motions of the planetary bodies. (Loud applause.) In wishing to teach those under you the elementary principles of agricultural chemistry, I don't wish you to leave out of view the beautiful and powerful evidence which it affords, of the existence of a deity who is present at all times, and regulates in his infinite wisdom all our affairs and intercourse. I therefore concur entirely in the remarks of Mr. Pyper, that moral training is above all things necessary for the young. Moral training comes first, intellectual next, and practical last of all; but yet all are here combined, for by this practical knowledge you can give the young mind a new view of natural theology. It is not merely chemistry or physiology, but this science seems to be one of the most beautiful pictures of natural theology. (Applause.) I might tell you there is a great deal of poetry in the sketch I have presented to you. The whole planetary system in dead masses float in space, and the dead earth forms the subject which geologists contemplate; but on the surface of this dead earth you have a soil, a vegetable and an animal life, subject to changes which must interest and concern every inquirer. Suppose the soil contained no seed—that no vegetables grew, and no animals existed, still no doubt the other parts of creation would go on; and this subject of ours is just one idea, an episode, as it were, in connection with the planetary system. And this little episode in the mighty poem of nature, presents to us the Divine bounty, goodness, wisdom, forethought, benevolence and the exalted intelligence of divine mind. How beautiful it is indeed! What an incontestible manifestation of the existence of the Deity is to be found in this episode, planted on our globe. I have no doubt, gentlemen, that in imparting this branch of knowledge to those under you, you will enjoy an agreeable and entertaining study yourselves. I came among you an entire stranger, and therefore I have not been able to speak with the freedom and ease which, perhaps, I otherwise would have done; but I hope the kindness you have shown to me, and the attention you have paid to my explanations, will, in some measure, at least, have made up for my deficiency. If you do me the honor to ask me again before you, I trust I shall he able to address you in a better manner than I have been enabled on this occasion to do.

The learned Professor resumed his seat amidst great applause.

Smoking Seed-corn.—An exchange paper says that if ears of seed-corn are thoroughly smoked in a smoke-house, or over the fumes of burning tar, it will be thereby protected from birds and squirrels, after planting.

Miscellaneous Notes.

To Postmasters, Agents, and Subscribers.

All remittances, (in bills,) may henceforth be made to us, by mail, at our risk and cost.

Horse Distemper.—A correspondent of the Prairie Farmer recommends putting a rowel on the top of the head of the horse. His way is, to take up the skin and mane, just where the bridle covers on top of the head, and with a knife or big needle, put a string in to make it sore; as soon as it begins to run, the horse will be seen to mend. He says he has seen hundreds cured, and never knew one case to fail.

Carrots for Hogs.—A farming friend writes to the N. E. Farmer: "I have no faith in carrots as fatteners for hogs. I have steamed up cartloads upon cartloads, this fall, and fed them to a dozen and a half of hogs and shoats, and it is a man's work to keep them from squealing. But carrots are first rate for horses and cows—and no mistake."

Potatoes.—Somebody has made an estimate of the amount of potatoes produced this year in the United States. It would puzzle the cutest Yankee calculator to estimate the probable amount of the produce that will escape the rot.—*N. E. Farm.*

To prevent late frosts from injuring fruit.—It is suggested that plowing an orchard very deep, early in the spring, would tend to protect it against late spring frosts. When ground has been stirred, it is a better conductor of heat, receiving it in the daytime, and throwing it off at night more freely, thus tending to equalize the temperature—and the deeper the ground is loosened, the greater the effect produced. Hoeing corn ground to prevent frost from injuring it, is a well known expedient of considerable efficacy—and the benefit proceeds from the operation of the principle above mentioned. It would sometimes be advisable to plow the orchard two or three times in the course of the spring.

We deem this recommendation one well worth a trial.

Agricultural Schools.—We read of several eastern institutions, in which Agriculture has been introduced as a department of study.—Cortland Academy, N. Y. is about to introduce a regular course of Agricultural Chemistry and Geology. An effort is to be made this winter, to induce the Legislature of New-York, to establish near the city an Agricultural College, and Experimental Farm. In Scotland, the study of Agriculture has been introduced into about 90 Parish schools. Shall we take the hint?

Rot in Potatoes.—It appears by exchange papers that potatoes which were apparently sound when dug, have rotted extensively since. The same has taken place quite extensively in certain portions of this State.—The most approved remedy is said to be sorting them over, carefully rejecting any that exhibit any appearance of unsoundness, and drying the residue. Then put them away to keep in as dry a situation as possible.

Musty Oats poisonous—The Albany Cultivator says, several horses have died at Princeton, N. J. from eating musty oats.

Salt as a manure for wheat.—In a Farmer's conference, held in Marcellus, N. Y., for free discussion upon the leading questions of practical Agriculture, Mr. Brown stated that three bushels of salt per acre, sown just before the wheat was sown, increased the product seventeen bushels to the acre, over that which had no salt. The soil was a strong loam, with a stiff sub-soil.

Rust or Mildew.

This prolific source of loss to the grain-growing farmer, has long attracted the attention of observing men, and various have been the theories which have been formed to account for its origin. It was anciently attributed to certain dews settling upon the grain, and obtaining a caustic or burning quality from the intense heat of the sun. It has been thought to originate from the attacks of insects, introduced with the manure. A certain plant, called the barberry, has been accused as the origin of this pest. By some, it has been considered as arising from the excessively rapid growth, caused by alternate showers and sunshine, which, they say, fills the plants with juices beyond their power to elaborate. This is supposed to burst the outer coating of the straw, allowing the sap to exude, and form rust.—Still another opinion is, that it is occasioned by the exhaustion of the soil of some of those properties which are essential to the production of good grain.

Whatever diversity of opinion may have existed or may now exist, as to the *origin* of rust, there is little, at the present day, as to its nature. Upon examination of a plant affected with rust, by the aid of a magnifying glass, the rust is discovered to be an extremely minute parasitic plant, of the fungus tribe, (*Puccinia graminis,*) growing upon the stalk and leaves of the grain to which it is attached.

The fungus is at first brownish yellow, but changes to black, when it is commonly denominated, *black rust.* There is another and distinct species, (*uredo rubigo,*) which is common upon wheat, and is not so injurious.

The circumstances under which rust is found

most frequently to occur, are, unfortunately, matter of familiar observation to every farmer. As the grain approaches its maturity, if a season of wet weather occurs, especially if accompanied with intervals of warm sunshine, rust is almost sure to prevail. On such occasions, it is not confined to any particular locality, but extends as an epidemic over the country, where such has been the state of the weather. It is found on new lands, as well as on those which have been worn by long cultivation. Certain circumstances, however, are observed to make a material difference in the extent of the evil, in the same locality.—Some varieties of grain, particularly of wheat, are more affected than others in the same situation. Grain, growing in hollows, is much more liable to attack, than that on a hill-side or plain; and that which, either from the natural fertility of the soil, or the plentiful use of manure, has grown with great luxuriance, than that of more moderate growth. The kind of soil, too, has an influence. Rust is found to strike worse, (other circumstances being equal) on quick, warm, sandy or gravelly soils, than on a tenacious clay—or, in other words, on soils which heat and cool with rapidity, than on those which change in temperature slowly. There is one situation, in which, it is said, rust never occurs—and that is, on the sea shore: this fact is both significant of the nature of the disease, and indicative of a remedy.

The following extract from Johnson's Encyclopedia, contains the author's explanation of the manner in which rust grows upon wheat:

"If the straw of wheat be examined with the assistance of a magnifying glass, its striped surface will be seen to arise from longitudinal partitions of the outer bark or epidermis. The depressed partitions are furnished throughout their length with 1 or 2 rows of pores or orifices, which seem capable of emitting or imbibing moisture as the wants of the plant may require. Similar pores, though varying in form and arrangement, pervade the leaves and chaff, or glumes; and it is in these pores that the seeds of the parasitical *Puccinia* (rust) obtain admission, and, vegetating in the cavities to which they lead, doubtless thrust their minute roots into the cellular texture beneath the bark, and intercept for their own nourishment that sap which should proceed to the grain for its developement and completion. The grain necessarily becomes shrivelled, proportionally as the fungi are more or less numerous on the plant: and as it is the nutriment that would have perfected the interior of the grain, which is chiefly extracted by the fungi, for the exterior form is nearly completed before the mildew occurs, the proportion of *flour* to *bran* is always much reduced.

"I have almost always been able to detect the *Puccinia* upon the lower part of the culms, generally on the shoot-blade early in June; but it is not till the following month that the season determines whether the ravages of this fungus will be more than ordinarily extensive. If July is hot and dry, it may be concluded, without much fear of disappointment, that there will be but little injury incurred by the mildew. The reason of this is very apparent; for in such a season no fungus will vegitate vigorously. This order of plants invariably delights and flourishes in a moist atmosphere, and in a subdued light, accompanied by gentle warmth. A *muggy* season is the most expressive term to describe that wherein the mildew vegetates most rapidly. In such seasons likewise, it unfortunately happens that the wheat plants remain longest succulent, their pores expanded, and their fibres relaxed; circumstances peculiarly favorable to the admission of the seeds of the fungus, to their vegetation, and to the penetration of their roots. That it is in such seasons the *Puccinia* vegetates most rapidly and extensively, is supported by the observations of others; for, although they consider such a season as the actual cause of the mildew, their testimony is equally valuable, though from it they have drawn erroneous conclusions."

It appears to be the opinion of the author just quoted, that the fungi, vegetating thus from certain circumstances favoring their growth, are the cause, and the only cause of the disease; and that they are produced always by the vegetating of the seeds. There are those, however, who dissent from this opinion, and who, recognizing these fungi as the immediate source of injury, consider them but as the *effect* of another and ultimate cause.

There seems no difficulty in accounting, on the theory of our author, for the *spread* of the disease, when once prevalent; for, from the analogy of nature, which produces nothing in vain—which never makes a cause, without a corresponding effect, we may safely infer that the seeds of the fungi, which are dispersed so abundantly into the air, are intended to propagate their species, and do propagate it. But the question may occur, whether there be any other origin of the fungi than their seeds—or whether, in fact, there be such a thing as spontaneous vegetation, with reference to those inferior species of vegetables, and they be produced within the cuticle of the stalk or leaf, from the unhealthy or partially elaborated juices of the plant, without seed. In favor of this view, it may be urged that a field in the depth of the forest, is as liable to be affected as one surrounded by innumerable others.—Whence came the seeds? Again, if fungi are produced only by their seeds, whence come the new species that appear to spring suddenly into existence, and spread rapidly over the earth, like, for example, those on the leaves and stalks of diseased potatoes?

Without attempting to answer these questions, we subjoin our author's account of the manner in which rust is propagated.

"The age of the seeds, the thickness of sowing it, and previous or subsequent cultivation, appear to have no preservative influence; therefore, it

now only remains to consider whence the seeds of the fungi come to the crop, which will lead to a consideration of the modes of prevention; and, lastly, whether there is any practicable cure.—There seems to me little doubt that the fungus is communicated from the soil to the crop. It is certainly not conveyed thither with the seed-grain, for no washing, no cleansing, nor pickling of this has ever been observed to have any effect. In "mildew years," all fields of any infected districts are affected; and when it is only partial, one end, or a breadth across the middle of a field, of which the seed has all been treated alike, will be grievously injured, whilst the other parts suffer little more than ordinarily; for I have previously noticed, every year, and in all fields, the mildew is partially present. There is little difficulty in accounting for this. Every *Puccinia* sheds some hundreds of seeds, more minute and lighter even than those of the puff-ball; and as every wheat crop annually produces some, these are wafted over neighboring closes by every wind during their seeding-time, which is chiefly in the months between May and October. In the soil upon which those seeds alight, they attach themselves to the stubble or other matters, and vegetate, reproducing seeds, or remaining without germination until the following spring. This fungus has also the characteristic of spreading by stooling, or throwing out offsets. This may be seen if its progress is watched upon any culm which it affects. I once placed in a paper box some pieces of straw that were more completely mildewed than any I had before observed; this was left during the whole winter in a closet, which at this season is unusually damp. Upon opening the box in the spring following, I found the *Puccinia* had grown, and spread in various rectilinear forms, upon one of its sides, and upon the bottom, a fact which I remember to have seen confirmed in one of the volumes of the *Quarterly Journal of Science*. The fungus, then, though its natural habitat is the culm of the wheat, will vegetate upon other vegetable bodies; and this satisfactorily explains the mode in which it may, after being preserved through the winter, be conveyed to the succeeding year's crop,—to say nothing of those seeds which may be attached to the straw of the preceding year, and be conveyed to the next year's crop by various modes."

We shall recur to this subject at a future time.

Profitableness of Farming.

The great and unexpected foreign demand having caused an enhanced price for every description of farm product, the farmer who has not too soon parted with his surplus, may well rejoice in the cheering reward for his labors. At this time none will be disposed to complain of the market; the reasonable expectations of all are realized. The reflection naturally arises,—if such a state of things would but continue,—if we could but be sure, every year, of as liberal a price for the productions of our fields, our labors would be much more cheerfully performed, and farming would no longer be the unprofitable business we have found it.

It must be conceded, that farming, with the avarage of prices for the last five years, and in the way it is commonly managed, has been, by no means a money-making pursuit. Indeed, the assertion is often made, that with a farm, well broken, fenced, and stocked, and with suitable farm buildings erected, a man cannot hire his labor, and obtain any thing like simple interest on the amount of capital invested. Fifty cents a bushel is all that a large portion of farmers have obtained for wheat, the crop on which they placed their almost exclusive reliance; and, at this price, without an abundant harvest, the cultivator is paid little more than the bare expense of cultivation, and transportation to market. Other grains have been, relatively, about equally low,—their bulk and weight precluding the possibility of sending them to a distant market, and consequently confining their demand to the limited consumption at home. If these grains are used to fatten pork and beef, the case has been little better, the price of these articles being also very low. Indeed, we can hardly hope to compete in these productions with our neighbors farther south, where mild, short winters call for little expense in wintering animals, and where crops of corn are raised somewhat more cheaply and abundantly than with us.

From these discouraging circumstances, many, who had been attracted from other trades and professions, to try the charms of a farmer's life, have taken their hands from the plow in sore disappointment, and "looked back" to their former occupations. And many others, bred to the calling, have sought other employment, or have repined that they exchanged their eastern homes for the west.

As the present enhancement of prices cannot, with any certainty, be expected to continue beyond the present year, and as, in prosperity it is well to anticipate and provide against adversity, a few thoughts on the subject with which we have started may not be mistimed.

And first, it may minister to contentment when depression of prices visit us, to know that no where in our country is farming so profitable, as to bring a high interest on capital invested, except in seasons, like the present, of extraordinary and extensive failure of crops in some quarter of the commercial world. The adage is a very old one, that

> "He that by the plow would thrive,
> Himself must either hold or drive;"

implying that as an investment of capital, and a business to be conducted by hired labor solely, farming cannot be expected to be profitable. One of the most intelligent judges of

the matter in the State of N. Y.(Gov. Wright,) not long since estimated the average profits received on farming capital in that State, to be not over 3 per cent,—frequently less. No one, we think, would be disposed to place the profits of farming here, lower than that. We have before us a pamphlet, in which is an extract from a paper published in Central New-York, in which the writer labors to prove the vastly greater profits of farm capital here than there. He shows, by calculations that appear plausible, admitting a favorable season for wheat in both States, not only that the same amount of capital would bring a higher return per cent, but *that the same number of acres* would yield more clear profit here than there. Be this as it may, it is certain we are not alone in our complaints of low prices, and insufficient reward for our labor. Farming, every where, unless protected, as in England, by high prohibitory duties, is not an employment to make one suddenly rich, or returning any but moderate rates per cent. for capital invested.

We believe it is not desirable it should be otherwise. Not that we would not desire to see the agricultural class prosperous and independent—but for the very reason that we wish them to be so. What would be the consequence, if farms were a species of property, which brought a high per cent. profit to the owner, though worked by hired labor? The natural course of things would inevitably cause a gradual transition of landed estate from the hands of the working farmer, into those of the capitalist. The latter would see in them, from the perfect security they afforded, a most desirable investment—he would buy them up, and *a race of tenantry* would be fast substituted for the independent owners of their own soil. The certainty of a result so little desirable, might well make us submit patiently to the only state of things which can prevent it.

While, however, farming can never, and ought never to be such a business as to tempt the capitalist, we fully believe it is capable of being so managed, as to yield to the man who himself holds the plow, and makes the farm his domain, a safe, comfortable, independent living, even in the worst of times: and this is all men ought to ask from any calling; especially one combining so many solid advantages as this.

In our next number, we shall endeavor to offer some suggestions, the adoption of which, we think calculated to aid in securing this result.

A Wheat Insect.

We are informed that a very singular and destructive insect has made its appearance in parts of Will county, where it makes itself very disagreeably destructive. It is a small fly, a little more than one eighth of an inch in size when grown. It has four wings, which when folded upon the back present the shape of a diamond.—They were discovered at wheat harvest, when their presence was indicated by the heads of wheat turning white. The insect was found in myriads, covering the straw particularly about the joints. Upon touching the wheat stalks they would fall as if dead to the ground. When the wheat was cut they took to the corn fields if near, where they are now making themselves much at home within the husks or under the sheaths about the stalks. Corn which was not too far ripened when they found it died immediately. They are now preying on the young wheat, which they eat off just beneath the surface of the earth, taking all clean as they go. They are in all stages of growth and have been from the first; and the ground is perforated with holes made by them. Their scent is that of the bed bug, and a field of them is any thing but delightful. The ant-eater which preys on the aphides preys also on this insect.—*Prairie Farmer.*

The Origin of the Prairies.

In lately passing through the prairie country, we were at some pains in searching for geological facts by which to account for the formation of these vast level plains and their destitution of timber. The result has satisfied us that they were once covered with water, either as the bottoms of lakes, running streams, or in the same manner as the everglades of Florida. The upper stratum is loose sand or dark loam, such as forms the bottom of lakes and rivers or contiguous marshes; the next is sand, clay, and pebbles of large size, bearing evidence of having been rolled about by the action of water, and deposited in their present position by the same agency.—Large numbers of fossil shells, of fresh water formation, are found in every direction and stratum. Besides these, large erratic blocks of granite, sometimes many feet in circumference and many tons in weight, and other transported fragments are to be met with, scattered over all the prairies; and on the southern shores of the lakes, wherever the superficial sand and gravel have been removed from the rocky strata, straight parallel furrows appear plowed in their smooth surface, running in a general southern direction, and always preserving their parallelism. The only rational mode of accounting for the appearance of these transported fragments, as no formations of a similar nature exist south of the great lakes, appears to us to be through the agency of water and ice. During the submergence of these vast fields, when the lakes must have disembogued themselves through the Gulf of Mexico, these huge boulders were caught up by the ice, firmly imbedded in it, and driven off by the northern blasts or streams into a more southern climate, and when the ice melted in the spring they were deposited where they now are found. This is to us the only means of accounting for their appearance, as well as parallel furrows in the rocks on the southern shores of the lakes. By what agency this state of affairs was changed, whether by the upheaving of the prairies from the action of internal fires, or their gradual filling up by the annual deposition of the loose detritus wash-

ed down by the stream or deposited from the melting ice, it is useless to speculate. But as the whole of the alluvial lands of the valley of the Mississippi are of comparatively recent formation it is not improbable that the waters of the great lakes washed the bases of the hills on both sides of the Mississippi, and that the whole intervening space, now so fertile and fruitful, was then a dark rolling stream of liquid mud. To us it appears that the whole West is the richest field for the geologist in the world, and none more so than those portiens of the country lying between the Lakes and the Ohio.—*Natchez Free Press.*

From the N Y. Farmer & Mechanic.

Cultivation of the Vine.

Mr Flert:—When you were last at my place, you requested me to send you a written statement of my mode of treating the grape vine. In the first place I dig a hole two and a half to three feet deep, according to the length of the vine, never less than two, about three feet square. My reason for doing so, is to get the roots beyond the influence of the sun, as they are naturally inclined to approach the surface, causing the vine to throw out an unusual quantity of foliage and fruit; and when the dry season commences, they feel the drouth immediately. After the vine has been established for three years, I dig down and cut off every root from the main body. In doing so I dig a trench each side of the vine a foot deep, from two to three feet wide, and fill it up with all sorts of rubbish, such as pea brush, bones, shoes, &c. I chop up all my vine trimming in pieces of about 8 inches in length, and throw them in the trench. I then throw the ground taken from the ditch over the whole, then cover the surface as far as circumstances will permit, with long litter, pea brush, &c. in order to exclude the sun as much as possible. By excluding the sun the ground becomes moist, and is pierced with thousands of angle worm holes; whenever we have a shower, the rain filters through and is carried down those holes to the roots. I do not think it necessary for the sun to touch the earth at all; and this I think I have fully proved. I have one grape vine that I planted in the rear of my kitchen, which it afterward became necessary to occupy for a wood-house. Not liking to cut it away, I bent it down and laid the floor over it, so that it has been with the roots entirely under the building. Every year this vine produces as much fruit as it is capable of sustaining. It has a northerly exposure, and the grapes are usually the first ripe on the place. I do not think the berry quite as large as those that stand in a more open exposure; but the flavor is equally fine. I have one vine that has a westerly exposure, planted shallow, and the surface not covered; this dry weather the fruit has entirely perished. The next vine to it was planted in the same exposure, and same depth, but was afterwards filled in so as to bring the root about three feet under the surface, which was not covered with rubbish; the fruit has not wilted, but is not near the size of those vines which had a covered surface. I have one perpendicular arbor running North and South, and from the top of the arbor I have conducted several vines East and West. The fruit on the vines running West ripen ten days or a fortnight sooner than running East. I have changed the vines, and the result was the same. I occupy no more ground with that arbor than the mere width of the post, which is about seven inches; and I cultivate on each side of it, close up to the post. I do not think it necessary, in order to cultivate grapes to any extent, to occupy any more space than the width of the post. I think the vine is all the better for having any sort of a green crop on the surface near it, so as to exclude the sun.

If I was going to set out a vineyard, I should set a row of posts six feet apart, then another row of posts parallel to them, thirty feet distant from the first row. I would then plant a vine at each post, conduct a No. 12 wire from the top of one post to the other. I then could use the intermediate ground for any short crop of garden vegetables I wished. They would all do well; and by training a single vine up the post and across the wire, I would get full as many grapes, if not more, than when the whole arbor was occupied; and the wind has no effect upon it, the wire being so flexible that they do not suffer as much as those that are trained on an arbor. The posts ought to be high enough to drive under with a horse.

My time of trimming is late in the spring; at least I never commence trimming until the vine will bleed freely, which a great many people consider a great detriment; but when I cut out old wood, I always cut it three or four feet longer than I intend it shall be, so that when the first cut becomes gummed over, I cut away some more, to give the sap a free passage. I will venture to say my vines are the largest in the State of New York, for their age. The great difficulty with me is that they are so loaded with fruit that I am obliged to pick off large quantities when green.—In consequence of the superior flavor of my grapes, owing I think to the surface of the ground being covered and tilled, I have no trouble in selling them in advance, as I have now done, for the last two years—Messrs. Hope, corner of Chamber street and West Broadway, have engaged them.

In trimming, I suffer no old wood to remain that I can possibly remove, and train the ones I wish for bearers, entirely smooth. I also make a second trimming in the course of the season, by removing all the middle growth.

Sing Sing, N. Y., Aug. 4, 1845.

From the American Agriculturist

The Force of Habit.

My experience teaches me that I fail much oftener from inattention to *little matters*, than for want of general knowledge in the practice of farming. And this inattention in nine cases out of ten, is the legitimate offspring of habit; and the reason why habit takes such an erroneous direction arises from the fact that our minds are naturally attracted by the *magnitude* of objects, without considering that this magnitude is only attained by the accumulation of single atoms.

To illustrate the importance of this idea, we will suppose two farmers, A and B, start at once in the business of farming with $1000 capital each. A saves six per cent. a year by exact economy, whilst B sinks property at the same rate. For a time, perhaps, we shall hardly be able to notice any difference in their thrift; but in the course of a few years, we find A a wealthy farm-

er, and B fast sinking to poverty. A fraction short of twelve years, would suffice, at compound interest, to place A in possession of $2000, and B with $500. Twelve years more would give A $4000, and B $250. Another twelve years would give A $8000, and B $125. Thus we see the result of habit in these two men in the important results produced, supposing Providence favored both alike. But this is not all: habits generally acquire strength with the lapse of time. The man who sinks in the ratio of six per cent. at first, would soon reach twelve, and so on, until he was ruined.

Suppose, now, we look at the practice of these men a little in detail. They neither of them are dissipated men in their general habits, and are good at work. But A has learned to calculate a little closer. He knows that it requires no more to keep a good cow than a bad one. Hence, then, we find him in possession of a little better stock. His cows give at least a quart of milk each per day more than B's; his sheep yield a little more wool, and his wool, in addition, is a little finer.—Here, then, he saves a few dollars. A also seizes with avidity a few leisure hours to haul his muck, etc. for manure; whilst B, feeling a little tired, or the oxen being in the pasture at some distance, thinks it best to omit it until he can hire a hand a day and get a good lot of it. Thus A has a little more manure, and of course a little better crop. So we see A not only producing more, but the foundation of his prosperity widening in every direction.

But perhaps some one will say we can't help habit—it's second nature. Asking your pardon, sirs, I demur to this statement. You have the power of reasoning and the faculty of judging given you by your Creator, and no earthly power can hinder your exercising it. Accustom yourselves, then, in every branch of your business, to ask this one question—Is the method I propose, the best, all things considered? Make a calculation of the profit and loss of every crop, and increase or diminish each kind, as more or less profitable; having reference to the permanent improvement of the soil. I have frequently been surprised at the results I have obtained in such calculations, and frequently altered my course, very much to my advantage.

But you may not only improve your own habits by the discreet use of your judgment, but your domestic animals have habits which you may mould to your advantage. I will illustrate this by one very simple incident. I have a considerable range of woodland pasture, and I find by giving my cattle their salt at night near the outlet of the pasture, they soon learn to resort to that spot at that time of day. Another incident may be worth relating. I had come to the conclusion that a small lot of hens would more than pay for their keeping, in destroying worms, &c., without any reference to their eggs or chickens, provided I could learn them to keep out of the grain. Now, for two years past, I have not had a mite of trouble with them, though running at large all the time, and grain within ten rods of the house and barn. The simple expedient adopted was, the turning down a lot of grain for them to go to as they pleased. And the way they turned out the eggs in consequence, was a caution to those who neglect to feed their biddies. J. H. JENNE.

Domestic Economy.

Winter Dairy.

"If farmers, who have easy access to market, were to raise larger quantities of carrots, and other roots for their milk stock, with a view to a winter dairy, I am confident they would obtain a profitable return for their labor. With a sufficiency of such food, and a pint of Indian meal to each cow per day, cows that 'come in' in the autumn, (which they should do for a winter dairy) will give a rich supply of milk all winter, and the cream, under the management of a skillful dairy woman, will produce butter of fine appearance and flavor. Fresh made butter, of this character, will always secure a quick sale, and a higher price than the best quality laid down in June or September."—*Stone's Address.*

"A SUBSTITUTE FOR WHEAT BREAD.—Pare and cut a small pumpkin, boil it in as much water as will cover it; when well cooked, stir into the kettle as much Indian meal as will nearly stiffen it, cook it two or three minutes, cool it, put in salt and yeast to the judgment, and knead in flour enough only to make it suitable to bake—a very little quantity will be required. This bread, if properly made, will suit the nicest palates."

The exchange from which we take the above, says: "The sample of bread sent to this office, made from this receipt, is truly delicious, surpassing in flavor any made from the best western wheat."

FINE PICKLE FOR MEAT.—Brown sugar, bay salt, common salt, each five pounds; saltpetre one pound; pimento (bruised) five ounces; black pepper (bruised) three ounces; nutmegs (rasped) one ounce; boiling water five gallons. MIX.—This not only imparts a fine red color to the meat, but also gives it a most delicious flavor.

TO PREPARE A ROUND OF FRESH BEEF FOR BOILING.—Put the beef in a dish of sufficient size, and add water enough to cover the lower part of the meat. Then put a quantity of salt on the top.—In a few hours it becomes well seasoned, and when thoroughly boiled, makes a most palatable dish.

TO CURE BUTTER.—I. Lump-sugar, 5 parts: saltpetre, 8 parts; common salt, 32 parts. Powder fine and sift, then use one ounce of this mixture to every pound of butter; pack in wood or vitrified jars, not glazed pans. This will keep butter for two or three years.

TO REMOVE THE TURNIP FLAVOR FROM BUTTER.—Nitre; 1 part; water, 20 parts. Dissolve, and put a little into the milk, warm from the cow.

A SECRET FOR A FARMER'S WIFE.—While the milking of your cow is going on, let your pans be placed in a kettle of boiling water. Strain the milk into one of the pans taken hot from the kettle, and cover the same with another of the hot pans, and proceed in like manner with the whole mess of milk, and you will find that you will have

double the quantity of sweet and delicious butter.—*Exchange Paper.*

Butter may be made yellow in winter by putting in the yolk of an egg near the termination of churning. It has hitherto been kept a great secret by many, but its great value requires publicity. In many places it is usual to substitute a little finely scraped carrot for the egg.—*Ex. Paper.*

Chemistry in the Dairy.—If, when butter is to be churned, a little old butter be put into the cream, the process of churning will be rendered much easier.—*Exchange Paper.*

Circulation in Vegetables.

The structure of plants is exceedingly simple and nearly alike in all the different classes, so far as they have been examined. The important parts which serve to provide for their nourishment and growth, are the root, the stem and the leaves. These are all formed of a variety of vessels and tubes, in which the sap and other fluids circulate. The sap is in the first place taken into the roots, probably by means of the long fibrous filaments which are usually extended in every direction, and conveyed into what are called the *central vessels.* These are so called from their being arranged, in annual shoots and herbaceous plants, around the pith or centre of the stem. They are constructed of fibres which are wound spirally around them, and are thence sometimes called the spiral vessels. This arrangement probably contributes to the motion of the fluids they contain. By these vessels the sap is carried up the stem and distributed to the different branches, and thence to the leaves, flowers, or fruit. In the leaves it circulates and is there exposed to the influence of light, heat, and air; and is no doubt perfected and elaborated by the processes which it undergoes. Returning from the leaves, it descends in a different set of vessels situated in the bark, and in its descent contributes to the growth and nourishment of the plant by depositing new layers of vegetable matter between the bark and the wood.

This is the course of the circulation in annual plants, in which there is an entirely new growth every year from the root. But in trees or shrubs where the same trunk or stem continues from year to year, the arrangement, though essentially the same, is a little varied. The central vessels are not situated directly around the pith, but in the external layer of wood called the *alburnum,* which is always the growth of the preceding year, and performs this office only for one season, being afterwards surrounded and enclosed by a new layer of the same kind. Hence the trunks of trees are formed by layers of wood, which have been yearly deposited around the centre, and have successively afforded a passage for the sap, by means of the central or spiral vessels, to ascend into the branches and leaves. From the leaves the sap descends through the vessels of the internal layer of the bark, as in the former case, and in its descent gradually contributes to the formation of an alburnum for the next year. That part of the bark, also, that has once served the purposes of circulation, like the alburnum, is afterwards thrown aside, and its place is supplied by a new layer formed on its inside between it and the alburnum. Hence the large quantity of thick and dead bark which is often accumulated upon the outside of the trunk and branches of old trees.

This is a slight sketch of some of the most important points in the vegetable circulation. It appears from this, that the principal seat of the growth and nutrition of plants is in the bark and alburnum, and that all the new matter yearly added, is deposited on the outside of the latter and the inside of the former—that the growth of one year is only subservient to the circulation of the next, and is ever afterwards of use merely in giving strength and stability to the trunk, in order to support the increasing size and weight of the branches and leaves. The wisdom and beauty of this provision, by which that portion of the plant, which has become useless for every other purpose, is thus made to answer a very important end, are sufficiently obvious; and it is rendered necessary by the circumstance that plants do not, like animals, arrive at a definite size and there cease, but go on growing to an indefinite extent, and consequently require corresponding increase of strength in those parts which are to support them.—*Smellie.*

From the N. Y. Tribune.

Important Invention.--Preservation of Provisions, &c.

Dr. Dionysius Lardner and Mr. J. Davison, of this city, have lately perfected an apparatus for the curing of provisions, and the preservation of woods and other substances, which promises to be of vast importance.

The apparatus is very simple and compact. A cistern to hold the brine or other antiseptic fluid communicating with an air-tight cylinder, into which the meat or other substance is placed, and a common lifting or exhausting pump, which withdraws the brine from the cylinder and returns it to the cistern. This is the whole apparatus—so simple as never to get out of order and yet astonishing in its operations. It can be made of any size, large enough to carry on the largest operations of our largest provision packers, and small enough for the use of the smallest families, and to occupy little more space than a barrel.—To prove the importance of this invention, we will state a few of its actual results.

1st. Meat warm and just killed was put into the cylinder, in the hottest of summer. The animal heat was at once extracted, and the meat cured in a few hours. This was done in the presence of Mr. Amelung, the great packer and curer of St. Louis, who carried the meat so cured to St. Louis in the hottest weather of summer, and it kept as well as meat ordinarily cured in winter.

2d. It is found that the blood is completely drained out of the meat, so that the steeping in hogsheads, as in the ordinary process, is not required. By this process, the cured provisions acquire very superior qualities, the juices being retained, which, in the ordinary method, are expelled. The weight is increased in proportion to the quantity of fluid infused into the meat.

3d. In the presence of Mr. Tunis of Cincinnati, a practical man, pork and hams were placed in the

cylinder. In 6 hours the former was cured. The hams were left in 6 hours longer—taken out, tried to the bone, found perfectly cured, and transferred to the smoke-house. Mr. Tunis, of the house of James C. Hall & Co. of that place, is now in the city, and can be referred to.

4th. Meat in which were skippers (an insect very difficult to get rid of) when placed in the cylinder, was freed at once, as the air was gradually exhausted, the skippers made their way to the surface, in search of air, where in a few minutes they perished—remaining fast on the surface of the meat, and not mingling with the brine.

5th. Old hams, black, and spoiled in appearance and taste, were well washed, scraped and dried, and then subjected to the operation of the apparatus, with sweetened pickle; in a few hours they were taken out and smoked, and in looks and taste it was almost impossible to tell them from new hams.

6th. Some hams that were very far gone, after being prepared as in the last case, were placed in the apparatus and impregnated with a weak solution of lime, afterwards taken out and thoroughly washed and dried. They were then placed in the cylinder again, and impregnated with the proper ham pickle, taken out and smoked with the same result as in the last case. They were nearly equal to *sound hams.*

What Food will Poduce the most Wool?

Peas, beans, vetches, &c., are useful for the purpose of enriching the blood, by furnishing it with large supplies of albumen, which is its principal constituent. It will be remembered that in the analyses of flesh and blood the relative proportions of their constituents are nearly identical; consequently, whatever food contains nitrogen, and the greatest amount of albumen, is best adapted to the development of flesh or muscle, and is therefore the most nutritious. Wheat, rye, barley, and buckwheat, contain large quantities of albumen, especially the first two; while oats, it will have been seen, contains 10½ per cent. of its organic elements of albumen, *and peas and beans no less than 29 per cent.* What conclusion, then, is to be drawn from this? In Chapter I. it is seen that the chemical composition of horns, hoofs, hair, *wool*, and even feathers, is substantially the same; their organic elements are coagulated albumen and gelatin, and their inorganic, silica, carbonate, and phosphate of lime, and the oxides of iron and manganese. Hence it will readily appear that that food given to the sheep which will supply the greatest proportion of albumen, in the same ratio will increase the wool secretions, and consequently be productive of the most wool, *provided, however, they also hold in suitable combination the inorganic substances of wool*, without which they assimilate mostly for the formation of flesh and fat. This may be exemplified thus—a soil may be highly productive of corn, as well as a few of the cereal grains; yet for the production of wheat it may lack the proper proportion of the phosphate and carbonate of lime, and consequently the berry will not only be deficient in quantity, but quality.

The following table exhibits the results of the experiments of the distinguished agriculturist De Raumer, on the effects produced by an equal quantity of several substances in increasing the flesh, tallow, and wool of sheep:

		Increased the weight of the living animal.	Produced wool.	Produced Tallow.
		lbs.	lbs.	lbs.
1000 lbs.	potatoes, raw, with salt,	46½	6½	12½
do.	do. without salt,	44	6½	11½
do.	mangel wurtzel, raw,	38½	5¼	6½
do.	wheat,	155	14	59½
do.	oats,	146	10	42½
do.	barley,	136	11½	60
do.	peas,	134	14½	41
do.	rye, with salt,	133	14	35
do.	do. without salt,	90	12½	43
do.	meal, wet,	129	13½	17½
do.	buckwheat,	120	10	33

These results are said to agree with those of De Dombale, and with those of a number of other agriculturists.

It will be perceived by the above table, that *wheat* produces the greatest increase in the flesh of the sheep, though but little greater than *oats*; that *peas, wheat,* and *rye,* produce the greatest increase of wool; and that *barley* and *wheat* cause the greatest increase of tallow. That, as an average, grain generally gives about three times the increase in the flesh, that roots do when in equal weight; that grain produces about twice as much wool as is caused by an equal weight of roots, and several times the amount of tallow.

The legitimate conclusion from the foregoing is, that the flock-master, whose object is wool only, must rely on good hay and some straw, whose constituents are admirably adapted for the growth and perfection of wool, with a moderate allowance daily of ground peas and oats, and some potatoes as green food, for the greatest amount of wool; and those gross substances, oil-cake, corn-meal, and ruta-baga, may be turned over to the producers of fat mutton.—*American Shepherd.*

From the Albany Cultivator.

Sheep Husbandry.

L. Tucker, Esq.—I have noticed many articles in your paper, headed "Heavy Fleeces—Fine Sheep." As I have been a wool-grower for the last thirty years, and have seldom, if ever, in that time, wintered less than 300, it seems proper for me also, for once, to speak on this subject.

My manner of improving my flock has been the following: No observing wool-grower can have failed to notice, that as great differences exist among sheep, as to the length, thickness and firmness of wool, as of the hair of the cow. The first care of a good dairyman is to select his cows best for milk, quantity and quality. Build is a second object.—By proper crossing of these selections, our best breeds of cattle are produced. I have had ewes apparently from the same original stock, one at three years old, producing but three pounds of wool, and a miserable lamb;

another of the same age, and in the same order, shearing 5¼ lbs., and raising a good lamb. The fleece of the first will be short, thin, and of a rotten, deadly appearance. The other, long, thick, and of fine silky, lively appearance. This last I breed from as long as good keeping will enable me to. I have now a ewe 18 years old, with a likely lamb at her side, and another, 14 years old, that has raised a lamb this year with as much grain as both would eat, which at seven months old weighed 109 pounds. From a flock of 320, I select annually 100 for breeding, in the spring before shearing, two years old, and upwards. From this selection I mark 20 or 30 of those which have thick, long, fine wool, free from gum or jar, or any appearance of coarse wool or hair, on the flank or tail. The female part of the increase of this selection are preserved; without this attention to marking the best ewes before shearing, the best of the flock will be disposed of after shearing. I give my 100 ewes six quarts of corn per day. My lambs seldom have any grain, the remainder of the flock have no grain. All are housed in the winter, and have access to good water and salt at all times. I have many ewes which from old age shear light fleeces. Yet my whole flock of over 300, yield 4 lbs. and 4 ounces per head. I have no 10 or 13 lb. fleeces. My heaviest buck fleece weighed 8½ lbs.

There is but little known as to the weight of wool from the weight of the fleece. I tried the experiment once upon two bucks. One weighed over 8 lbs., and the other 6¼ lbs., both in the same order and washed alike. The largest fleece weighed after being cleansed, 3½ lbs., and the other 4 lbs. I do not believe a fine wooled sheep can be produced in Vermont, that will in one year yield 6 lbs. well cleansed wool. I hope your correspondents will send you the amount of the fleece well cleansed, and the price their wool brings this year. I sold my last year's clip the 8th of last March, and this year's clip last month. The average price of both clips is 39½ cents. During the the last seven years it is as follows. My clip of 1842 and 1843 sold in 1843, at 34, 36, 43, 45, 46, and 70 cents.

If the wool-grower will look back to the prices of those years, he will find the tariff has had but little effect upon the prices. This jumping out and into ship at every session of Congress, is what ruins the wool-grower.—He must expect ups and downs in prices; that is the lot of all. I fear not the west. The increase of sheep (fine sheep,) does not keep pace with the increase of population. Fine sheep never can survive the cold rains of the western prairies. Fine wool yields a better profit to the farmer even at this time than any other agricultural business. This is the first time I have spoken. Therefore please excuse my long yarn.

JOHN S. PETTIBONE.

Manchester, Vermont, Oct. 28th. 1845.

Remarks.—This sturdy Vermonter entertains no apprehension of the supply from the west affecting the price of fine wool. But the ground on which his confidence rests is, we think, quite illusory—that the West cannot rear fine-wooled sheep to advantage. When such sheep are provided with the same protection which is furnished them in New-England, there is no difficulty in keeping them, nor have we any evidence that the quality of the wool degenerates. We have not, it is true, the fine mountain sheep-walks of Vermont—but we have a dry soil and climate, which produce a quality of grass favorable for the production of the best quality of wool—while our somewhat milder winters, and light snows, are circumstances in our favor. Alternating so advantageously as wool-growing does with wheat-culture, so that it is an advantage to the western farmer to keep his sheep, if it were only for the fertility they impart to his summer fallows, the west can furnish the eastern market with this staple, if need be, at a price with which the Yankees, with all their thrift and management, cannot compete.

ED. MICH. FARM.

AN ESSAY ON THE WHEAT FLY, *and some species allied to it, by* ASA FITCH, M. D.—The author will accept our thanks for a copy of this interesting pamphlet. We have not had time to read it, but promise ourselves soon much pleasure and instruction from its pages.

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Michigan Farmer.

TERMS.

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